DOCUMENT RESUME

ED 060 102 TM 001 260

TITLE	Folder (garment) III 6-27.988 -- Technical Report on Standardization of the General Aptitude Test Battery.
INSTITUTION	Manpower Administration (DOL), Washington, D.C. U.S. Training and Employment Service.
REPORT NO	TR-S-63
PUB DATE	Mar 55
NOTE	7p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Aptitude Tests; *Clothing; *Cutting Scores; Evaluation Criteria; Job Applicants; *Job Skills; Norms; Occupational Guidance; *Personnel Evaluation; Test Reliability; Test Validity
IDENTIFIERS	Folder (Garment); GATB; *General Aptitude Test Battery

ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

ED 060102

TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

FOLDER (garment) III 6-27.988

B-306 or S-63

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

U. S. Employment Service in
Cooperation with
New Jersey State Employment Service

TM 001 260

U. S. DEPARTMENT OF LABOR
Bureau of Employment Security
Washington 25, D. C.
March 1955

GATB #833
September 1954

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY FOR FOLDER (garment) III 6-27.988

B-306 or S-63

Summary

The General Aptitude Test Battery, B-1001, was administered to 55 women at the time of referral to the Kay Karen Company, Atlantic City, New Jersey. These women were hired as trainees for the occupation of Folder (garment) III 6-27.988. The hiring was done without regard to test performance. The criterion consisted of broad category supervisory ratings which were based on the quality and quantity of production achieved at the completion of the training period. The following aptitudes, selected on the basis of mean scores, job analysis data and correlations with the criterion, were included in the test norms for this occupation: Form Perception (P), Aiming (A), Finger Dexterity (F), and Manual Dexterity (M).

GATB Norms for Folder (garment) III 6-27.988 - B-306 or S-63

Table I shows, for B-1001 and B-1002, the minimum acceptable score for each aptitude included in the test norms for Folder (garment) III 6-27.988.

TABLE I

Minimum Acceptable Scores on B-1001 and B-1002 for B-306 or S-63

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
P	CB-1-A CB-1-L	75	P	Part 5 Part 7	75
A	CB-1-C CB-1-K	80	K	Part 8	80
F	CB-1-O CB-1-P	85	F	Part 11 Part 12	80
M	CB-1-M CB-1-N	85	M	Part 9 Part 10	80

Effectiveness of Norms

The data in Table IV indicate that 14 of the 17 poor workers, or 82 percent of them, did not achieve the minimum scores established as cutting scores on the recommended test norms. This shows that 82 percent of the poor workers would not have been hired if the recommended test norms had been used in the selection process. Moreover, 33 of the 36 workers who made qualifying test scores, or 92 percent, were good workers.

TECHNICAL REPORT

I. Problem

This study was conducted to determine the best combination of aptitudes and minimum scores to be used on the General Aptitude Test Battery for the occupation of Folder (garment) III 6-27.988.

II. Sample

Beginning in October 1952, the GATB, B-1001, was administered to 72 women at the time of their referral to the Kay Karen Company, Atlantic City, New Jersey for the job of Folder. Hires were made without reference to test scores. Although a total of 72 women were hired by the company, only sixty completed the one month training period. Twelve women dropped out or were transferred to other jobs prior to the completion of the training period. In addition, five women were eliminated from the sample because some of the test data appeared to be invalid. Therefore, the final sample includes 55 women.

In hiring women for this occupation, the company uses no selection tests and imposes no experience or educational requirements, although applicants must be able to read and write. Age requirements are generally limited to the 18 to 45 year range, however, this is not strictly adhered to. Selection is based only on information obtained during an interview.

Table II shows the means, standard deviations, ranges, Pearson product-moment correlations (corrected for broad categories) with the criterion, and the standard errors of correlation for age and education. Experience was not a factor to be analyzed in this study because none of the workers had previous experience in this work and all the individuals had worked the same length of time when rated--one month.

TABLE II

Means (M), Standard Deviations (σ), Ranges, Pearson Product-Moment Correlations (Corrected for Broad Categories) with the Criterion ($_{c}r$) and the Standard Errors of Correlation ($\sigma_{c}r$) for Age and Education

Folder (garment) III 6-27.988

N = 55

	M	σ	Range	$_{c}r$	$\sigma_{c}r$
Age (years)	27.6	6.8	19 - 49	-.016	.135
Education (years)	10.0	1.7	5 - 12	.092	.134

The data in Table II indicate that there are no significant correlations between age or education and the criterion.

III. Job Description

Job Title: Folder (garment) III 6-27.988

Job Summary: Visually inspects dresses for flaws, attaches bows and belt cords to dresses and folds dresses.

Work Performed:

Prepares to drape (fold) dress: Removes dress from rack behind the work table, places it on the work table and visually inspects it rapidly for flaws in cloth, mistakes in sewing, or raw edges; fastens buttons with fingers; picks up proper tag from pile on the work bench and winds string of tag a couple of times around the top button of the waist to fasten it to the dress; picks up pencil and writes work number on pieces of tissue paper used to pad dress so that any error in draping (folding) may be traced to its source.

Folds dress so that it may show to advantage when displayed on clothes rack: Takes up one or two pieces of tissue paper, the number depending on the firmness of the material; places paper on dress to measure it with dress, and, if paper is longer than the dress, folds paper over at top to make it the same length as the dress; folds over the two top corners of the paper and inserts paper inside the dress with the folded part at the neck; smooths out paper so that it touches the sides of the dress; using a cardboard gauge to get proper distance of the fold from the center, folds over material at the left side seam of the waist at the waistline to form a pleat; picks up a straight pin from the pile on the work table and inserts pin through the pleat, the goods of the dress, and the paper to keep the pleat in place and fasten the paper to the dress; makes a pleat on the right hand side of the dress and pins it in place in the same manner.

Ties sash attached to dress into a bow: Pulls ends of sash around to back of dress, smooths material, and ties the sash ends into a bow.

Attaches belt cords to dresses having cords for belts: Picks up a cord from pile on table and pulls ends of cords through loops of dress; picks up a pin from the pile on the table, pins cord to dress in front at the waistline and ties ends of cord into a bow; fluffs out tissue paper under skirt with hands to make skirt stand out.

Pins bow to neck of dress: Picks up a bow and a small safety pin from piles on work table and, holding bow in place, pins bow to the neck of the dress at the center front; smooths out garment and hangs draped (folded) garment on rack at the rear of the work table.

Note: Although the routine may vary with the type of dress, the tasks remain the same.

IV. Experimental Battery

All of the tests of the General Aptitude Test Battery, B-1001, were administered to the sample group.

V. Criterion

The individuals in this sample were hired by the company in small groups over a period of one year. The criterion consisted of broad category supervisory ratings based on quantity and quality of performance. Both, the Plant Manager and the Forelady were familiar with the relative performance of all the workers. Accordingly, each of the two supervisors was requested to assign an independent rating of Excellent, Good, Satisfactory or Poor to each trainee at the completion of the one month training period, which would reflect his relative qualitative and quantitative performance. One month later, the supervisors were asked to confer and to rerate the workers jointly without reference to the independent ratings each had originally assigned. When all the criterion data were collected, a comparison was made between the individual ratings originally assigned by each supervisor and the ratings assigned jointly at the conference. A high degree of agreement was obtained between each individually assigned set of ratings and the conference ratings. In view of this, the conference ratings were used as the criterion for validation purposes since they reflected the combined judgment of both supervisors.

The number of workers assigned to each criterion group was Excellent, 6; Good, 14; Satisfactory, 18; and Poor, 17. The broad category ratings were converted to quantitative values to be used for computational purposes. The Excellent, Good, Satisfactory and Poor ratings were converted to quantitative values of 67, 57, 49 and 39 respectively.

VI. Statistical and Qualitative Analysis

The aptitudes included in the final norms were selected on the basis of mean scores, job analysis data, and correlations with the criterion. Table III shows the means, standard deviations, Pearson product-moment correlations (corrected for broad categories) with the criterion and standard errors of correlation for the aptitudes of the GATB. The means and standard deviations of the aptitudes are comparable to general population norms with a mean of 100 and a standard deviation of 20.

TABLE III

Means (M), Standard Deviations (σ), Pearson Product-Moment Correlations (Corrected for Broad Categories) with the Criterion ($_cr$) and Standard Errors of Correlation (σ_{cr}) for the Aptitudes of the GATB

Folder (garment) III 6-27.988

N = 55

Aptitudes	M	σ	$_cr$	σ_{cr}
G-Intelligence	88.3	16.7	.346**	.119
V-Verbal Aptitude	91.7	17.6	.174	.131
N-Numerical Aptitude	83.1	18.6	.354**	.118
S-Spatial Aptitude	91.3	17.8	.473**	.105
P-Form Perception	95.7	20.2	.563**	.092
Q-Clerical Perception	90.9	19.8	.465**	.106
A-Aiming	97.5	19.4	.657**	.077
T-Motor Speed	89.9	20.2	.698**	.069
F-Finger Dexterity	103.6	14.8	.610**	.085
M-Manual Dexterity	105.8	18.0	.605**	.085

** Significant at the .01 level

The job analysis indicated that the following aptitudes measured by the General Aptitude Test Battery appeared to be important for this occupation:

Aptitude P - Form perception is required in visually examining dresses for defects; in folding tissue paper inserts to the shape required to fit into the dress; in judging where to position pleats that are folded in the front and back of the dress; in judging correct locations to attach bows; and in folding dresses so that they show to best advantage.

Aptitude A - Aiming is required in pinning in pleats correctly, and in pinning bows, sashes, and belt cords to the proper position on the dress.

Aptitude F - Finger dexterity is required to fasten buttons rapidly, to attach tags to dresses, to pick up and insert pins, and to tie sashes and bows.

Aptitude M - Manual dexterity is required to remove dresses from the racks and place them on the table for inspection, to attach tags, to insert tissue paper in dresses, to fold in pleats, to tie sashes, to attach bows, and to fold dresses.

The data in Table III show that the highest mean scores in decreasing order of magnitude, were obtained for Aptitudes M, F, A and P, respectively. All of the aptitudes have standard deviations of less than 20, except Aptitude T. The smallest standard deviation was obtained for Aptitude F.

When N = 55, correlations of .345 and .266 are significant at the .01 and .05 levels of confidence, respectively. All of the aptitudes, except Aptitude V, correlate significantly with the criterion at the .01 level of confidence.

On the basis of job analysis data, mean scores and significant correlations with the criterion, Aptitudes P, A, F and M were selected for inclusion in the norms. Although there was some statistical evidence to warrant preliminary consideration of Aptitudes G, N, S, Q and T, none of these aptitudes appeared to be sufficiently important on the basis of mean scores or job analysis data to warrant further consideration. Therefore, they were not included in the final test norms.

The minimum scores for Aptitudes P and A were set at one standard deviation below the mean scores and rounded to the nearest five point score levels. The minimum scores for Aptitudes F and M were set at one standard deviation below the means and rounded to the lower adjacent five point score levels. Setting cutting scores at these levels yielded the best selective efficiency for the norms and resulted in critical scores of 75, 80, 85 and 85 for Aptitudes P, A, F and M, respectively.

VII. Predictive Validity of Norms

For the purpose of computing the tetrachoric correlation coefficient between the test norms and the criterion and applying the Chi Square test, the criterion was dichotomized by placing those workers who were rated as "Poor" in the low criterion group. Those workers who were rated as "Excellent," "Good," or "Satisfactory" were placed in the high criterion group. Table IV shows the relationship between test norms consisting of Aptitudes P, A, F and M with critical scores of 75, 80, 85 and 85, respectively and the criterion for Folder (garment) III 6-27.988. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

Relationship Between Test Norms Consisting of Aptitudes P, A, F, and M with Critical Scores of 75, 80, 85, and 85, Respectively and Criterion for Folder (garment) III 6-27.988

N = 55

	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	5	33	38
Poor Workers	14	3	17
Total	19	36	55

$r_{tet} = .89$ $\quad X^2 = 21.905$

$\sigma_{r_{tet}} = .23$ $\quad P/2 < .0005$

The data in the above table indicate a high and significant relationship between the test norms and the criterion for this sample.

VIII. Conclusions

On the basis of mean scores, correlations with the criterion, job analysis data and their combined predictive efficiency, Aptitudes P, A, F and M with minimum scores of 75, 80, 85 and 85, respectively, are recommended as B-1001 norms for the occupation of Folder (garment) III 6-27.988. The equivalent B-1002 norms consist of P-75, K-80, F-80 and M-80